

What is claimed is:

1. A gas reaction apparatus comprising:
a vaporizer for producing a reaction gas by vaporizing
5 a liquid source material; and
a reaction chamber in which the reaction gas reacts,
wherein the vaporizer is configured as a unit for
constituent members forming the reaction chamber, and the
reaction gas produced in the vaporizer is directly
10 introduced into the reaction chamber.
2. The gas reaction apparatus of claim 1, wherein the
vaporizer is directly formed at an outer side of a gas
introduction unit for introducing the reaction gas into the
15 reaction chamber.
3. The gas reaction apparatus of claim 1, wherein the
vaporizer is formed above the reaction chamber.
- 20 4. The gas reaction apparatus of claim 1, wherein the
vaporizer includes a spraying nozzle; a vaporizing chamber
forming a spraying space of corresponding spraying nozzle; a
narrow passageway communicating with corresponding
vaporizing chamber; and a draining unit communicating with
25 corresponding narrow passageway and the reaction chamber.

5. The gas reaction apparatus of claim 4, wherein the narrow passageway is formed of one or more passageways annularly disposed around the vaporizing chamber, and an annular draining passage communicating with the narrow
5 passageway is disposed in the draining unit.

6. The gas reaction apparatus of claim 4, comprising a heater unit for heating inner surfaces of the vaporizing chamber and the narrow passageway.

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7. The gas reaction apparatus of claim 5, wherein a filter for capturing solid or liquid phase materials in the reaction gas is disposed inside the draining passage.

15 8. The gas reaction apparatus of claim 7, wherein the filter is disposed at a draining port of the draining passage, which communicates with the reaction chamber.

9. The gas reaction apparatus of claim 8, wherein a valve
20 body for opening or closing the draining port is disposed, and the filter is disposed to surround the valve body.

10. The gas reaction apparatus of claim 7, comprising a heater unit for heating the filter.

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11. The gas reaction apparatus of claim 10, wherein the filter makes a thermal contact with an inner surface of the draining passage, and heated by the heater through the inner surface of the draining passage.

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12. The gas reaction apparatus of claim 11, wherein a heat transfer unit, thermally contacted with a portion other than edges of the filter, is disposed at the draining passage.

10 13. A semiconductor processing apparatus, comprising:

a vessel forming a processing chamber for processing a substrate to be processed, the vessel having a upper plate capable of being attached thereto and detached therefrom;

15 a supporting member, disposed inside the vessel, for supporting the substrate to be processed;

a showerhead for supplying a processing gas into the processing chamber, the showerhead being disposed below the upper plate to face the substrate supported by the supporting member;

20 a vaporizing chamber, disposed on the upper plate, for producing the processing gas by vaporizing a liquid source material; and

25 a gas passage, configured to connect the vaporizing chamber with the showerhead through the upper plate, for flowing the processing gas.

14. The semiconductor processing apparatus of claim 13, wherein the vaporizing chamber is formed as a space between the upper plate and a cap installed on the upper plate.
- 5 15. The semiconductor processing apparatus of claim 14, wherein the gas passage includes a narrow passageway formed by a fine gap of 0.5 ~ 10.0 mm between the cap and the upper plate, and the narrow passageway serves as a path for vaporizing a mist contained in the processing gas.
- 10 16. The semiconductor processing apparatus of claim 15, wherein a protrusion defining a sidewall of the vaporizing chamber is formed on the upper plate, and the narrow passageway is formed between a top surface of the protrusion
- 15 and an inner surface of the cap.
17. The semiconductor processing apparatus of claim 16, wherein the gas passage includes an annular passageway formed to surround the vaporizing chamber between an outer
- 20 surface of the protrusion and the inner surface of the cap, and a draining hole is formed at the upper plate towards the showerhead from the annular passageway.
18. The semiconductor processing apparatus of claim 17,
- 25 wherein there is further included a valve, installed at the cap, for opening or closing the draining hole.

19. The semiconductor processing apparatus of claim 14, wherein there is further included a spraying nozzle, installed at the cap, for spraying the liquid source material into the vaporizing chamber.

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20. The semiconductor processing apparatus of claim 14, wherein the upper plate is coupled to a main body of the vessel through a hinge, and the upper plate and the cap rotate as a unit around the hinge as a center with respect
10 to the main body of the vessel.